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ABSTRACT

This study attempted to distinguish between the ambivalent response of shyness and the more potent negative affect of fear in infancy. Sixty infants between 9 and 12 months of age participated in two laboratory situations: a nonsocial situation involving the presentation of a mechanical toy; and a social situation involving a standardized stranger approach. A shyness response was defined as the behavior of gaze aversion accompanied by the facial expression of joy, interest/joy, or interest/fear. Shyness blends were exhibited more frequently in the social situation than in the nonsocial situation, and more frequently than the fear/terror expression in the social situation. Fear/terror expressions were exhibited more frequently in the nonsocial situation than in the social situation and more frequently than the shyness response in the nonsocial situation. (Author/MM)

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INFANT BEHAVIOR IN SOCIAL AND NONSOCIAL SITUATIONS: FEAR VS SHYNESS

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ABSTRACT

This study attempted to distinguish between the ambivalent response of shyness and the more potent negative affect of fear in infancy. Nine- and 12-month-old infants participated in two laboratory situations: a nonsocial situation involving the presentation of a mechanical toy and a social situation involving a standardized stranger approach. A shyness response was defined as the behavior of gaze aversion accompanied by the facial expression of joy, interest/joy, or interest/fear. The shyness blends were exhibited more frequently in the social situation than in the nonsocial and more frequently than the fear/terror expression in the social situation. Fear/terror expressions were exhibited more frequently in the nonsocial situation than in the social situation and more frequently than the shyness response in the nonsocial situation.

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INTRODUCTION

One of the most frequently used procedures to measure individual differences in infant fear is the stranger approach situation (SA). Typically, ratings of the duration, intensity, and frequency of specific behaviors, such as crying, are made during this SA situation. These general ratings are then used to infer the negative affect of fear. Some have argued, however, that behaviors such as crying occur with the display of other negative emotions and, therefore, cannot be used as a reliable indicator of fear (Izard & Hyson, 1986). Furthermore, some have reported that the specific expression of fear ("the fear face") is rarely seen during the SA situation (e.g., Hiatt, Campos, & Emde, 1979; Izard & Hyson, 1986) and that infants, in the first year of life, frequently respond in a positive manner toward strangers (e.g., Rheingold & Eckerman, 1973).

There do exist, of course, other laboratory procedures to measure individual differences in infant fear. Most of these procedures are less social in nature (e.g., the approach of a remote-controlled toy). One study has reported that the specific expression of fear is exhibited by more infants in a less social situation than during the social SA episode (Hiatt, et al., 1979).

If not fear, what, then, is the emotional response of most infants to strangers? One possibility is a shyness response. In the adult literature, shyness is often described in terms of an approach-avoidance conflict or a state of ambivalence in social situations. Some signs of an approach-avoidance conflict have been reported in infants (e.g., Bretherton, 1978) and Izard has argued that the behaviors typically observed during a SA procedure are similar to the behaviors observed in shy older children and adults (Izard & Hyson, 1986).

Generally accepted definitions of shyness, however, suggest that infants are not capable of experiencing shyness. That is, most investigators of adult shyness suggest that behaviors indicative of shyness result from a fear of negative evaluation (which, of course, includes a cognitive appraisal of the possibility of negative social outcomes). Recent work by Asendorpf (1989), however, clearly demonstrates that adults exhibit shyness behaviors in situations that involve strangers but during which there is no threat of evaluation. Observers even rated subjects as more shy in a "stranger only" condition than in a "stranger/evaluation" condition, suggesting that shyness was aroused in adult subjects by the mere presence of strangers.

The notion of "stranger only" shyness is not really new. Buss (1980; 1984; 1986; Buss & Plomin, 1984) has suggested that infants experience "fearful shyness" in the presence of strangers. According to Buss, shyness is expressed as fear in infancy. As already discussed, however, infants rarely exhibit the stereotypical fear expression in social situations.

The present study was designed to measure the emotional responses of infants to strangers. Specifically, we attempted to measure the emotions of shyness and fear during a SA situation and to compare infants' responses in the social SA situation to their responses in a nonsocial situation designed to elicit fear.

METHOD

Subjects

N = 60

28 9-month-olds (13F; 15M)
32 12-month-olds (15F; 17M)

Procedure

Infants participated in two episodes:

1. Standardized Stranger Approach (Social Situation)
   Because the pick-up phase of this procedure was so intrusive and so unlike that of the toy approach, we did not include it in the present analyses.
2. Toy Approach (Nonsocial Situation)
   A battery operated toy elephant was released from a cardboard barrier, affixed to the top of a table. The toy took several steps toward the infant, stopped, raised its trunk and made the appropriate elephant noise. The toy completed three full approaches toward the infant.

The order of presentation was counterbalanced.

All sessions were videotaped with 2 cameras: 1 focused directly on the infant's face to allow coding of emotional expression; 1 focused more broadly on the situation to allow coding of infant behavior.

All sessions were divided into 5-second intervals for coding purposes.

Behavioral Coding

During each 5-second interval of both episodes, the presence/absence of 4 specific behaviors was coded: crying, gaze aversion, active avoidance, and passive avoidance.

Inter-observer reliability for each of these behaviors was more than adequate with intraclass correlation coefficients (assuming random raters) ranging from .94 to 1.00.

Emotional Coding

The facial patterns of infants were coded using AFFEX (Izard, 1972; Izard & Dougherty, 1980). AFFEX is a system that allows for holistic judgment of emotional expression and is a derivative of MAX, a system that uses 29 specific appearance changes in 3 regions of the face to identify 10 fundamental discrete emotions as well as several emotion blends.

Periodic reliability checks resulted in an average agreement of 86% between two independent coders.

For each 5-second interval of each episode, a judgment was made as to whether any emotion was expressed and, if so, what specific emotion or emotion blend.

VARIABLES USED IN ANALYSES

Behaviors:

Crying
Gaze Aversion

Discrete Emotions:

Fear/Terror
Enjoyment/Joy

Emotion Blends:

Interest/Fear
Interest/Joy

Shyness:

Interest/Fear + Gaze Aversion
OR
Interest/Joy + Gaze Aversion
OR
Enjoyment/Joy + Gaze Aversion

[Definition of shyness based on work by Izard (1972; 1977)].

RESULTS

McNemar's Test for Correlated Proportions:

1. A significantly higher proportion of infants expressed the discrete emotion of Fear/Terror during the nonsocial situation than during the social situation.

   X^2 (1) = 18.89, p = .00

2. A significantly higher proportion of infants expressed the combination of emotion or emotion blend and gaze aversion that we labeled as Shyness during the social situation than during the nonsocial situation.

   X^2 (1) = 6.50, p = .01

3. Shyness was expressed by significantly more infants than was Fear/Terror during the social situation.

   X^2 (1) = 10.32, p = .00

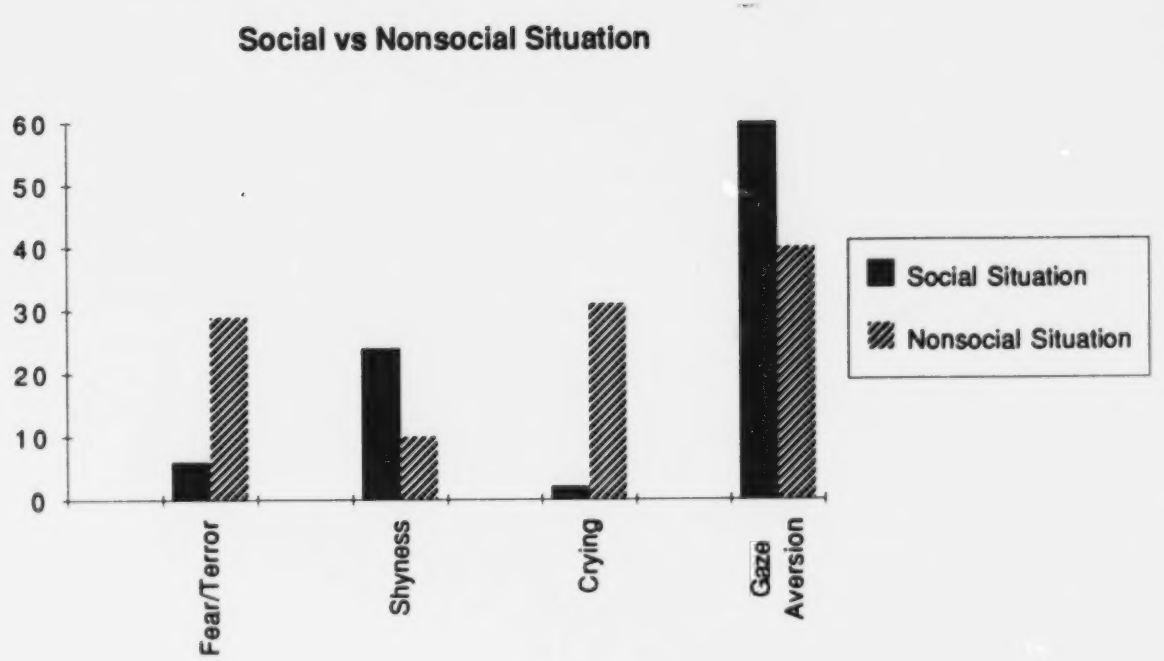
4. Fear/Terror was expressed by significantly more infants than was Shyness during the nonsocial situation.

   X^2 (1) = 9.26, p = .00

5. A significantly higher proportion of infants Cried during the nonsocial situation than during the social situation.

   X^2 (1) = 27.03, p = .00

6. A significantly higher proportion of infants exhibited Gaze Aversion during the social situation than during the nonsocial situation. In fact, all infants exhibited Gaze Aversion during the social situation.


Social vs Nonsocial Situation
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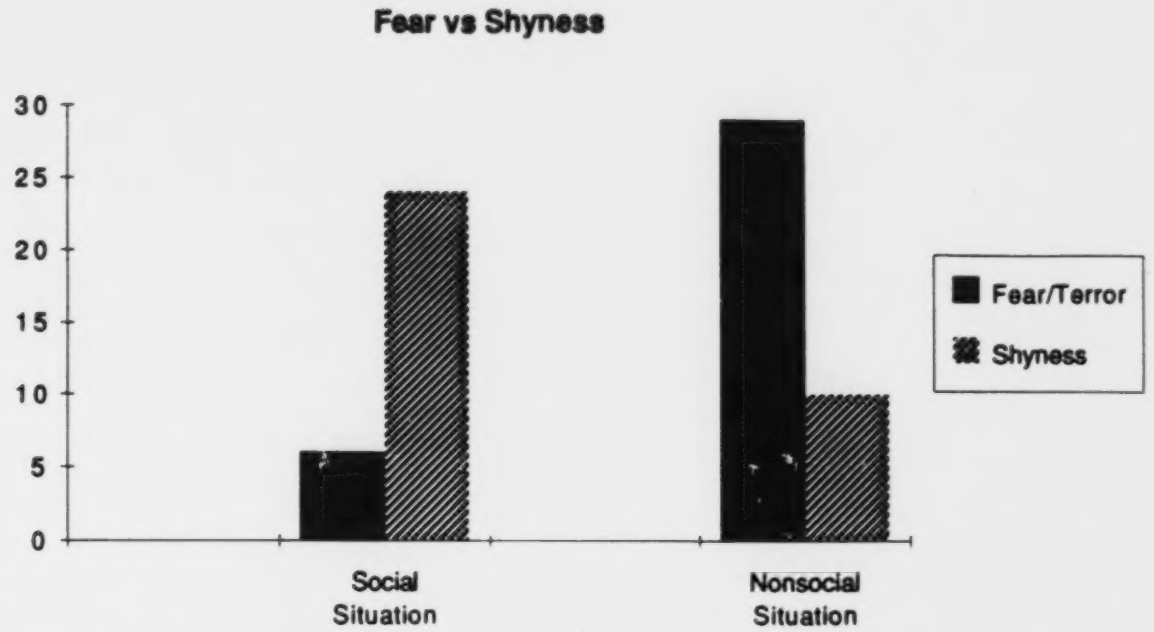
Fear/Terror
Shyness
Crying
Gaze Aversion
Social Situation
Nonsocial Situation


Fear vs Shyness
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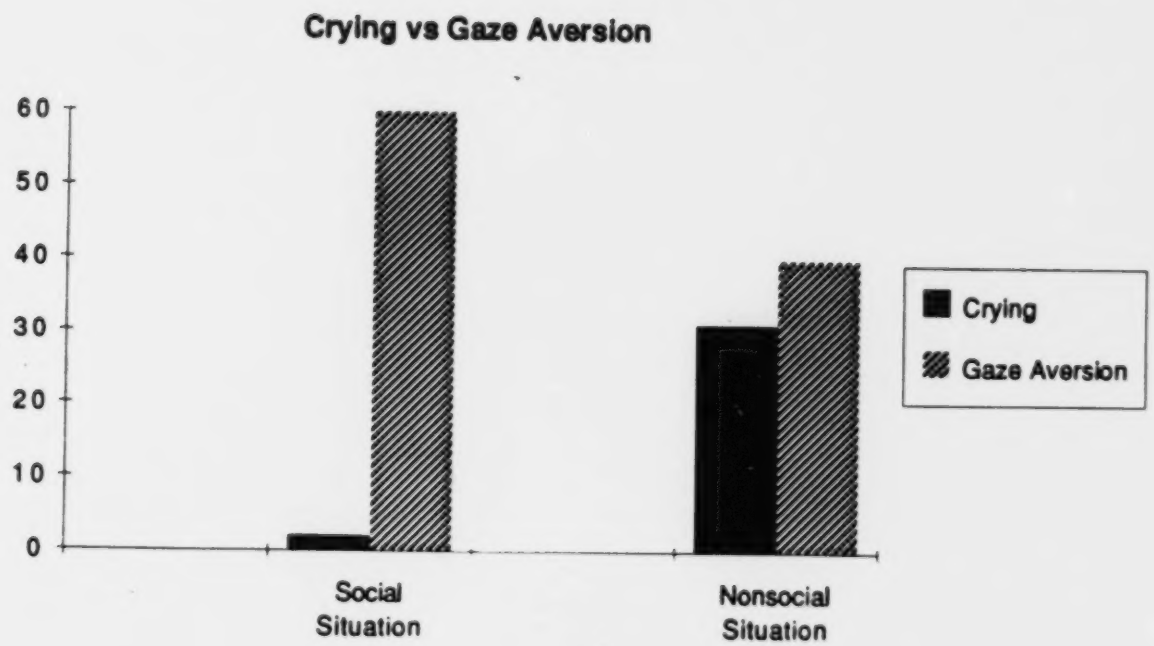
Social Situation
Nonsocial Situation
Fear/Terror
Shyness


Crying vs Gaze Aversion
60
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20
10
0
Social Situation
Nonsocial Situation
Crying
Gaze Aversion

DISCUSSION

These results clearly demonstrate that fear is not the response of most infants to strangers, thus supporting the work of previous investigators. Furthermore, infants demonstrated significantly different facial and behavioral expressions of emotion in the social and nonsocial situations. In the socially oriented stranger approach situation, few infants expressed overt fear but 40% exhibited the emotional and behavioral blends that suggest ambivalence. Only two infants cried but all infants exhibited gaze aversion during the stranger approach (with or without the accompanying emotion that resulted in classification as a shyness response). On the other hand, during the nonsocial toy approach situation, significantly fewer infants exhibited a shyness response but as many as 50% did exhibit the classic "fear face" and more than 50% of the infants cried.

Thus, these results suggest that the emotional response of shyness can be differentiated from fear during the infancy period and that the response of at least some infants to a social situation is much more similar to what we generally classify as a "shyness" response in older children and adults than it is to a "fearful" response.